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HISTORY OF THE
DROP-BOTTLE.

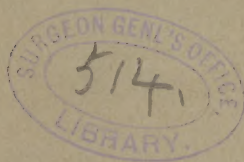
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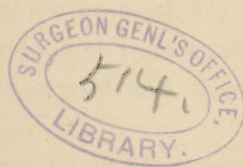
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HISTORY OF THE DROP-BOTTLE.*

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GENTLEMEN :

It is rather a curious fact that some of the most useful articles used in the many fields of trade, commerce and every-day life, have lost their origin in "the mists of antiquity;" and so it is in many respects the same with articles used by the physician in his every-day practice.

The Drop-Bottle may be cited as an example: who the inventor of this bottle was, is not known; but suffice it to say that very little or no improvement has been made over the Bottle in use at Moorfield's Eye Hospital in London, fifteen years ago. In the last two or three years, quite a number of Bottles have been introduced, each claiming more or less advantage over its neighbor,—the inventor always claiming among other things, originality, antiseptic qualities, and convenience.

As to originality, the latest placed upon the market are faithful copies of the English models—simply because one is made of white glass and another of blue, or one has a longer neck or a larger bulb, does not take away the fact that the last ones are not original. As to their antiseptic properties, this of course is a misnomer. Fluids in such bottles are no more kept free from aspergillus than those which do not claim such qualities. This has been demonstrated in a most careful and thorough manner by Dr. deSchweinitz, of this city.

As a convenience, the Drop-Bottle plays a very important role in the armamentaria of the ophthalmic surgeon. In fact, we should be at a great loss without it. The only question now

* Extract from a Clinical Lecture delivered at the Medico-Chirurgical College, Philadelphia, Pa.

before us is, which is the most useful and practical kind, and where are they to be obtained?

The Drop-Bottle in use at Moorfield's Eye Hospital for the past fifteen years, is represented in Fig. 1. It is a small, bulbous



Fig. 1.

shaped vial, rather wide at the mouth, and through the cork a small glass tube is inserted. The bottle is taken in the hand, turned upside down, and the heat from the palm, expanding the air within the cavity of the bottle, causes one, two, or three drops to be forced into the eye of the patient. Who the inventor of this bottle was, I have been unable to

ascertain, but it is supposed to have been invented by a man by the name of Clark. They are made of a uniform size, containing about three drams of the liquid.

No. 2 is a French model—very small—and differs from the English model in the fact that the glass pipette extends from a rubber cap which first sucks, by compression, the fluid into the pipette, whence it is afterwards dropped into the eye. They are made of various sizes, the one shown in the diagram being taken from a small pocket-case suggested by Galezowski. For practical, every-day service, this is not to be commended; it is simply used in a pocket-case.



Fig. 2.



Fig. 3.

No. 3, an ordinary ounce bottle, round, white glass, with a pipette ground into the neck as a stopper. The head is cup-shaped, over which is tied a piece of rubber cloth. The objection to this bottle is, that in a very short time the elastic becomes rotten, and breaks under pressure of the finger. It is not without much difficulty that this cloth is replaced. I brought this bottle with me from England

some years ago.

No. 4 is after a model recently made by Whitall, Tatum & Co. This consists of an ordinary bottle in which is inserted a glass stopper, which takes the place of a pipette. The head of this stopper is expanded, over which is fastened a piece of india-rubber covering or cap. By pressing this diaphragm, or cap, the air is expelled from the upper air-chamber, and by releasing the finger the fluid is sucked into the vacant space. This model, as will be seen, resembles the English bottle.

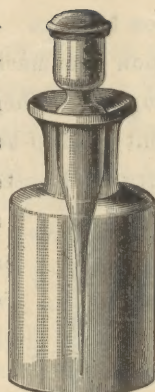


Fig. 4.



Fig. 5.

No. 5 is by Dr. McNaughton Jones: a bottle shaped very much after the Moorfield's, with a vulcanite stopper; passing through the center of the stopper a pipette with a hard rubber cap covering it. This is supposed to keep the fluid in the bottle free from aspergillus;—it does not do so, however.

This is an English model of practically no importance, as the stopper consists of a solid piece of glass, drawn to a point. The stopper is wide enough to fill the mouth of the bottle, passing down through it to the bottom. The fluid which adheres to the side of the stopper when lifted up, forms at the apex of the cone in a single drop. This is of more value in the denser fluids like boro-glyceride, etc, etc.

I have now in my possession one or two other models, but they are so nearly like the several described above, that it would not be fair to call atten-

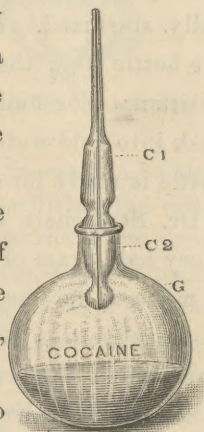


Fig. 6.

tion to them. Several ophthalmic cases have recently been put upon the market, with models very like those adopted by the English. They have their practical value. One of the most recent of drop-bottles was introduced by Dr. Stroschein, of Würtzburg, and possesses advantages over those in common use.

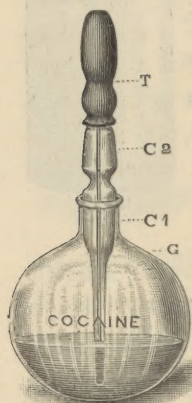


Fig. 7.

No. 7 represents the bottle ready for use. The flask is constructed of thin glass so as to bear heat without breaking. The pipette fits into the flask, and differs from those commonly employed in that it has two bulbs, (C 1 and C 2), instead of one. The pipette, which is of course traversed by a central channel, is surmounted by an india-rubber nipple. These flasks were the first on the market in which fluids could be sterilized, and this is done by heating the fluid over a gas-burner or an alcohol lamp for three minutes. The flask may be held by a wooden clip, or it may be supported by a wire gauze on a tripod. As soon as the boiling point is reached, the steam rises from the liquid and passes through the pipette, which is thus effectually sterilized. In about half a minute from the removal of the bottle from the flame, the pipette is inserted in its original position. The fluid may be thoroughly cooled by dropping the flask into cold water, after putting on the rubber teat; and the bottle is ready for use.

Dr. Stroschein adds eight to ten drops of distilled water to every half dram of the liquid before it is boiled. This is done to make up for the waste produced by boiling. I brought a set of these bottles (four) with me from Europe last September, since which time I have been using them in my operations; and as a result, in thirty-five cataract operations, five operations for glaucoma, and several iridectomies, I have not met with a single loss of the eye-ball, nor any untoward symptoms.

That this process described secures absolute sterilization of bottle, contents, and pipette, is confirmed by Dr. Stroschein, who made more than one hundred bacteriological experiments. For any ophthalmic surgeon who wishes to have a bottle in which he can use a sterilized fluid, I can amply attest to the value of this last one. The few described above, have value (which goes without saying) in using the ordinary fluids applied to the eye; but for a bottle in which to properly sterilize fluids, and a convenient way of handling them, I know of none which carry out this method better than those introduced by Dr. Stroschein. The name of the contained solution is indelibly inscribed upon the face of each flask at the time of making the bottle. Various colors indicate the various solutions contained. Thus: the bottle for atropine is black; that for cocaine, white; for eserine, red; and for homatropine, blue.

No. 8 is a flask lately devised by Llewellyn, pharmacist of Philadelphia, and is very useful where accuracy is required in dropping. The heat of the hand causes one drop to follow another very slowly; in addition the rubber bulb may be compressed to cause a larger stream to flow when necessary. These flasks come in sets, also having names of various drugs such as are used in ophthalmic practice, blown in the bottle.



Fig. 8.

As these flasks are less complicated than the Stroschein bottle, I am at present experimenting with them in sterilizing the contained fluid used in cataract operations. With the Stroschein bottle it is necessary to reverse the pipette after the boiling of the fluid, and replace the rubber nipple. Unless this is done with sterilized fingers, one runs some risk in provoking just what he is trying to prevent—infecting the point of the pipette. In the Llewellyn flask it is obvious that all of these dangers are minimized. The boiling of the fluid is done precisely as with the Stroschein bottle.



